

12. The combination of claim 11, wherein said high voltage circuit further comprises a high voltage source for providing the high voltage, said electrode emitter being coupled to said high voltage source by an electrical connection, said sensing circuit comprising a capacitive coupling to said electrical connection between said electrode emitter and said high voltage source.

13. The combination of claim 11, wherein said ionizer further has a reference circuit comprising a reference electrode to which a reference voltage is applied and which is positioned adjacent said emitter end, said monitoring circuit further comprising a reference sensing circuit capacitively coupled to said reference circuit for additionally detecting faults in said reference circuit.

14. The combination of claim 13, wherein said reference sensing circuit includes a capacitive coupling to said reference circuit at a location outside the vicinity of said emitter end.

15. The combination of claim 13, wherein
said high voltage sensing circuit includes an ion output alarm adapted to be triggered when the high voltage detected in the high voltage circuit drops below a first predetermined level; and
said reference sensing circuit includes an ion balance alarm adapted to be triggered when the reference voltage detected in the reference circuit drops below a second predetermined level.

16. The combination of claim 13, wherein the reference voltage is higher than ground.

17. The combination of claim 11, said monitoring circuit further comprises a control circuit coupled to said high voltage sensing circuit for controlling said ionizer responsive to fault detection.

18. In combination, an ionizer having high voltage circuits and a monitoring circuit

adapted to detect faults in at least one of said high voltage circuits of said ionizer;

said monitoring circuit comprising a sensing circuit for detecting the faults, said sensing circuit having a capacitive coupling to said at least one high voltage circuit, wherein said capacitive coupling does not create a current path for charges generated by said ionizer.

19. The combination of claim 18, wherein said high voltage circuits comprise an emitter circuit having an electrode emitter to which an emitter voltage is applied; and a reference circuit having a reference electrode to which a reference voltage is applied and which is positioned adjacent the electrode emitter, wherein said sensing circuit comprises an ion balance sensor that has said capacitive coupling to said reference circuit.

20. The combination of claim 19, wherein said ionizer is a self-balancing ionizer.

21. The combination of claim 18, further comprising a control circuit coupled to said sensing circuit for controlling said ionizer responsive to fault detection.

22. The combination of claim 19, wherein said sensing circuit further comprises an ion output sensor that has another capacitive coupling to said emitter circuit, said another capacitive coupling being positioned well beyond a corona region of said emitter circuit.

23. The combination of claim 22, wherein said ion output sensor further has an ion output alarm and said ion balance sensor further has an ion balance alarm, said alarms being electrically connected so that a triggering of the ion output alarm disables a possible triggering of the ion balance alarm.

24. The method of claim 6, wherein said step of capacitively coupling is performed without creating a current path for charges generated by said ionizer.

25. The method of claim 6, wherein said threshold voltage is preset.

26. The method of claim 6, wherein
said high voltage circuits comprise an emitter circuit having an electrode emitter to which an emitter voltage is applied, and a reference circuit having a reference electrode to which a reference voltage is applied and which is positioned adjacent the electrode emitter; and
said sensing comprises detecting both the emitter and reference voltages.

27. A ionizer monitoring circuit for detecting faults in a high voltage circuit of an ionizer without affecting operation of said high voltage circuit, said monitoring circuit comprising:
sensing means for sensing a high voltage of said high voltage circuit;
coupling means for capacitively coupling said sensing means to said high voltage circuit without creating a current path for charges generated by said ionizer; and
comparing means for comparing the sensed high voltage with a threshold.

28. The ionizer monitoring circuit of claim 27, wherein
said high voltage circuit comprises an emitter circuit having an electrode emitter to which a higher, emitter voltage is applied, and a reference circuit having a reference electrode to which a lower, reference voltage is applied and which is positioned adjacent the electrode emitter; and
said sensing means comprise first and second separate sensing means for detecting the emitter and reference voltages, respectively; and
said comparing means comprise first and second separate comparing means for comparing the detected emitter and reference voltages to first and second threshold, respectively.
